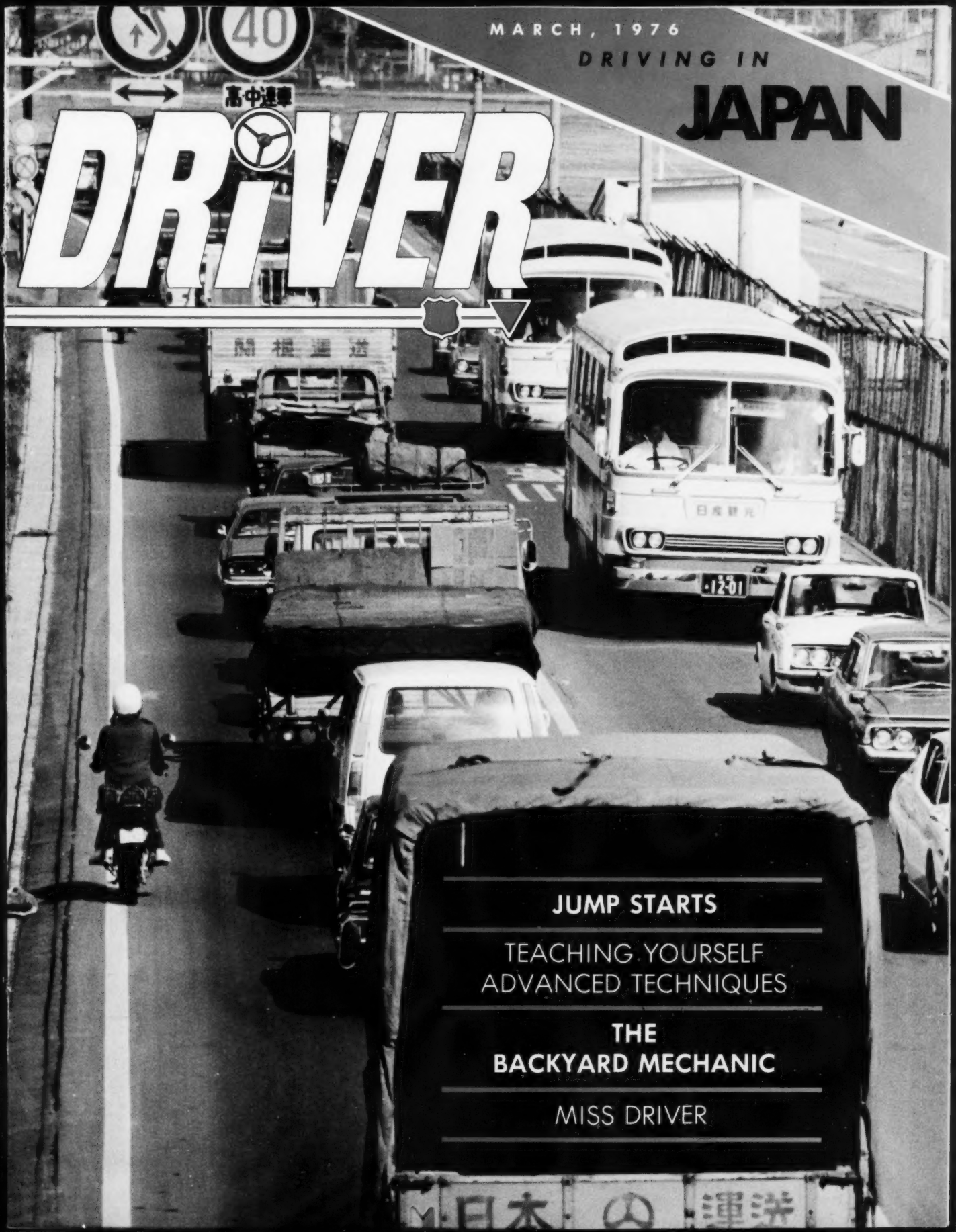
MARCH, 1976
DRIVING IN
JAPAN
DRIVER
JUMP STARTS
TEACHING YOURSELF ADVANCED TECHNIQUES
THE BACKYARD MECHANIC
MISS DRIVER

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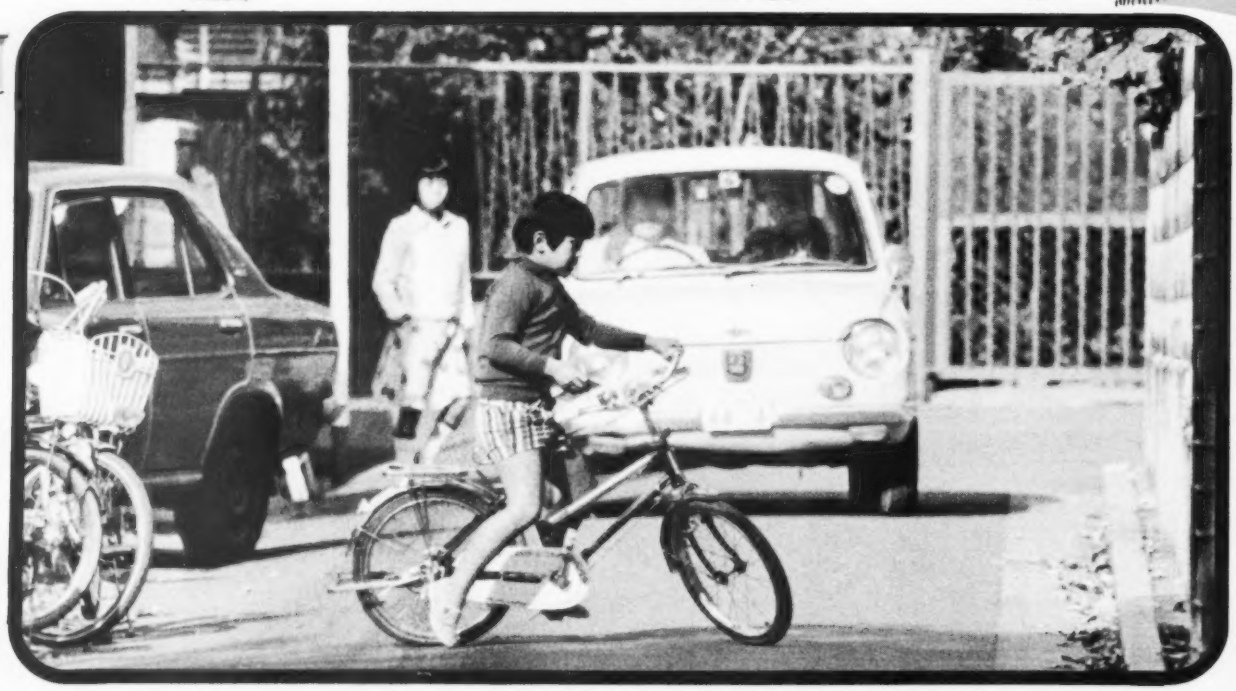
DRIVING



IN JAPAN

An old story says the streets of Japan were laid out in no apparent order so as to confuse any invading armies. If this is so, the designers did their job well. There is no such thing as "once around the block" in most Japanese cities. The streets zig zag in all directions, and sometimes they zig when one would expect them to zag. "Instant lost" often becomes the name of the game for any driver who is new to Japan.

To compound the difficulties, the Japanese drive on what Americans consider to be the wrong side of the road. Aside from the obvious mechanical hassles such as changing headlight aim, many Americans have difficulty in overcoming the feeling that a head-on collision is imminent.

(left)
Children are not known for looking before they run into traffic as this boy just proved. Also, note the diminutive size of the mini-car in the background, a scant three and a half feet wide.

THE RIGHT CAR

Buying a right-side drive Japanese car is helpful in overcoming this feeling, but that isn't the only reason such a purchase is probably the wisest course. In a left-hand drive car, it's impossible to see around a truck when you're trying to pass, so a passenger acting as a look-out makes it easier. Additionally, American cars tend to be longer and wider than Japanese autos, and with Japan's narrow streets that extra foot or so can be crucial.

Manual shift Japanese cars still have the lever on the transmission hump, so if you buy a manual-transmission vehicle you will have to learn to shift with your left hand. It's more cumbersome than difficult and takes a little getting used to, but it may be a point worthy of consideration when shopping for a car.

METRICS

Another thing that takes a little getting used to in Japan is the metric system. Speed limits are posted in kilometers per hour (KPH) and off-base fuel is sold by the liter. Eight KPH is equivalent to 5 mph and 3.785 liters is the same as one U.S. gallon.

On the open highway the speed limit is 60 KPH, while the Japanese version of the Interstate has several different limits. The limit for normal sized vehicles (everything from a VW on up) is 100 KPH, while the limit

continued

DRIVER

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

MARCH 1976

VOLUME 9 NUMBER 10

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Certain individuals shown in this magazine are not members of the Air Force and therefore do not conform to Air Force grooming standards.

THE EDITOR SPEAKS

DOUBLE CLUTCH

PLAYING "WHAT IF?"

Last week I was driving on a long, isolated, painfully dull highway that runs in a straight line for nearly 200 miles. Out of the clear blue my wife asked, "What do you think about while you drive?" A good question—(at least she implied my mind was active).

We both agreed these monotonous conditions tend to make zombies of drivers. The mind may wander off the driving task and many miles can pass with zero recollection.

My answer to the question is that I avoid daydreaming by FORCING myself to be interested in traffic and conditions around me. To do this I constantly ask myself questions about the cars, speeds, drivers, road conditions, emergency vehicles, road shoulders, and so forth around me.

In addition, I play "what if?" "What if" is a sort of game in which you plan what you will do to get out of an emergency situation. This could be a head-on collision threat, being forced off the road, or avoiding an accident immediately ahead. It involves knowing at all times the condition of the road shoulder, the location of obstacles, and the least dangerous route for evasive action.

"What if" saved me once. I was driving in a long line of cars traveling in the fast lane when one of the lead drivers noticed cars ahead were

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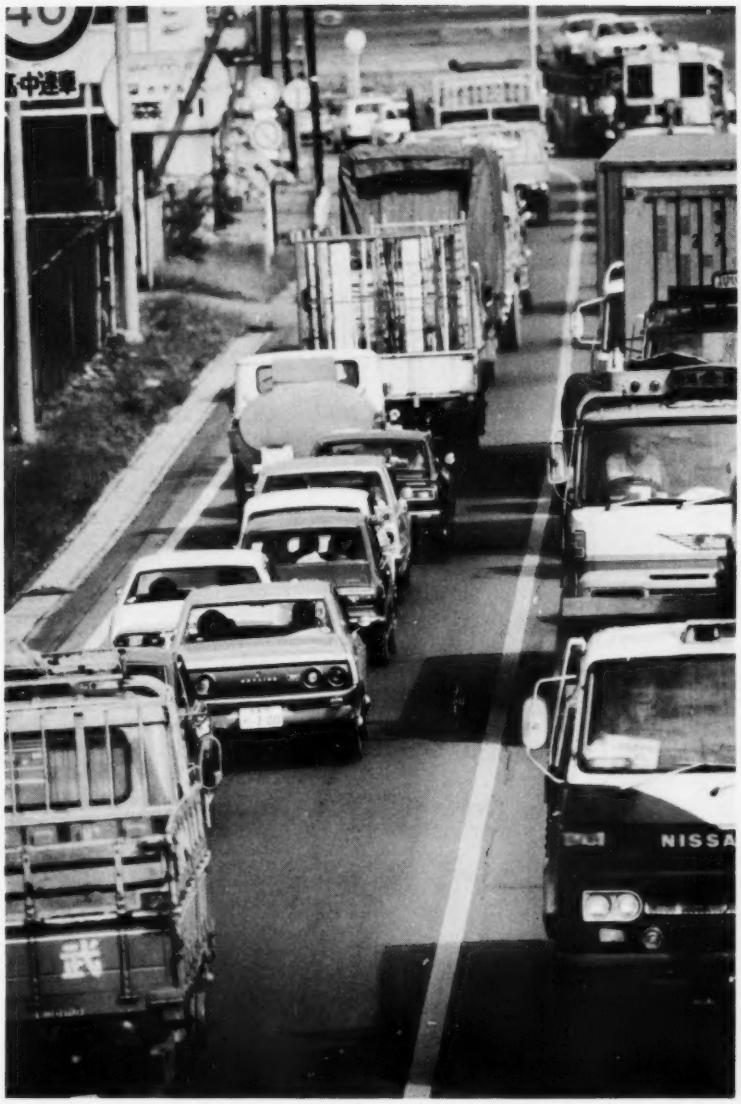
NEXT MONTH
Bike Centennial



Massive traffic jams are daily occurrences in Japan, so the prospective car owner shouldn't get upset when caught in one. One peculiarity evident here is the fact that the Japanese don't believe in the semi-trailer, which results in some very long trucks, some with up to 40-foot beds.

for micro-runabouts and motorcycles is 80 KPH. Where no signs are posted (usually in metro areas) the limit is 40 KPH.

The yellow and white centerlines system is used and, as in the States, a white line means passing is permitted, a yellow line that it isn't.

Japanese law also says that the passing vehicle has the right-of-way. If the vehicle being passed fails to yield and the passer has an accident, the vehicle failing to yield is held to be at least partially responsible for the accident. Further, passing is – under certain circumstances – permitted in a no-passing (yellow line) zone. However, this is a special case and is true only when the passer can get around without crossing or touching the center line. In this case, the vehicle may be passed on either the right or the left. Passing on the left is not recommended, however, for reasons that should need no explanation.

Emergency vehicles have the right-of-way over others and are allowed to speed when responding to an emergency. They use flashing red lights and sirens as warning devices. As an additional note, emergency vehicles are the only ones allowed to have their headlights on during the day. Motorcyclists accustomed to state-side "lights-on" policies should take special heed of this law, because they can receive a citation for violating it.

THE POLICE

The Japanese police perform many duties: They direct the flow of traffic, investigate accidents on the spot, and perform all the other duties normally associated with the police profession. And professionals they are. The on-the-spot accident investigations are thorough, accurate and fair. The motorcycle police division rides 750cc Hondas and goes through the California Highway Pa-

continued

continued

DRIVING IN JAPAN

trol's motorcycle course. One indication of the riding skill required is a test wherein the officer must ride his bike along a narrow plank and fire his gun at a target off to one side. He must not ride off the plank or miss the target.

Like stateside traffic officers, they are tasked with apprehending drunk drivers. Japanese drunk driving laws are probably the stiffest in the world. A blood alcohol content equivalent to one drink is sufficient to warrant a "Driving With Drinking Indicated" (DWDI) charge, which is punishable by up to a 50,000 yen ($165.00) fine and/or a year in jail.

In Japan, every licensed driver is considered a professional and can be charged with professional negligence, if warranted. This is a serious charge and both Japanese and Americans are currently serving jail sentences for it. A speeding ticket for 25 KPH over the posted limit can be sufficient.

When U.S. personnel are involved in an accident, whether or not they are at fault, the Japanese police are required to contact the military police, who will furnish an interpreter. This is done to assist the service member and is not intended as harrassment.

Japanese law requires that certain equipment be carried in the motor vehicle at all times. This includes a flashlight or flare and a red flag, both to be used in case of roadside emergency. Additionally, tire chains should be carried at all times because, in the event of snow, ice or mud, police may require their use in lieu of snow tires mounted on all four wheels. All vehicle registration papers must be in the vehicle at all times. These papers include insurance, titles (both Japanese and military), road tax certificate, and safety inspection form.

The windshield and other glass areas must be kept clean and free of foreign objects. Only compulsory insurance and U.S. Forces decals may be displayed on the window opposite the driver.

GETTING LICENSED

To own, operate or register a privately-owned vehicle in Japan, military personnel and their dependents first obtain a United States Japan Form 4 (Privately-owned Vehicle License) from their servicing pass and registration section.

Applicants must possess a valid stateside license or operator's permit from any state; the District of Columbia; the U.S. Territories of Guam, the Canal Zone or Puerto Rico; and vehicle operator's permit issued through military channels within the preceeding 12 months, or a valid international vehicle operator's license.

Persons not possessing a valid license are required to obtain a "Student Permit" and take a practical road test. Additionally, Air Force members must attend a safety orientation class conducted by the USAF.

Personnel shipping privately-owned vehicles to Japan must register their vehicles both on-base and with the Government of Japan Land Transportation Office in Tachikawa City.

In order for a person to pick up his vehicle at the port, he must obtain Japanese Compulsory Insurance and a minimum of $5,000 property liability

Photos by:
Det 6, 1369th Photo Sq, AAVS

(left)
This is one of the toll expressways that criss-cross the countryside, as viewed from an on-ramp. The speed limit on these roads varies with the type of vehicle, as explained in the text.

(below left)
This mirror is like many posted where buildings obscure the driver's view around corners. Not all corners have them, but wherever they are, one can be sure there's a good reason.

(below)
Because of the high cost of owning and maintaining a car, many people use a bicycle for transportation. A bike is also good for short trips and exercise. This lady is locking hers because, although the crime rate in Japan is remarkably low, why tempt fate?

insurance. Experience has shown that serious problems can arise if legal-minimum liability coverage for privately-owned vehicles is inadequate to cover possible legal judgments.

Lack of adequate coverage has resulted in severe financial hardships and could lead to imprisonment. Increased insurance coverage can be obtained at a small cost, determined

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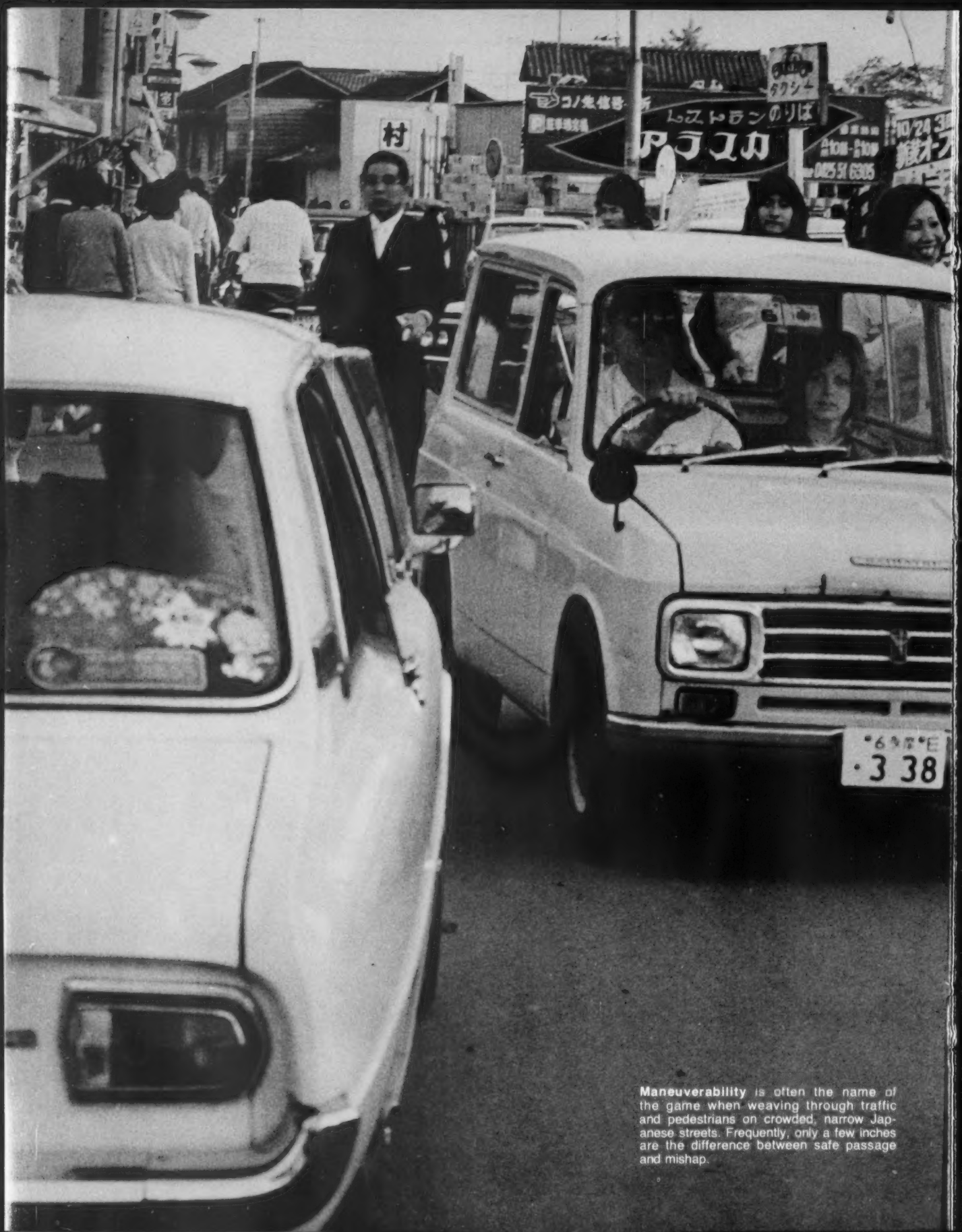


Maneuverability is often the name of the game when weaving through traffic and pedestrians on crowded, narrow Japanese streets. Frequently, only a few inches are the difference between safe passage and mishap.

continued

DRIVING IN JAPAN

by age, marital status, and number of dependents. Rates do vary from one company to the next; therefore, shopping around is recommended.

Additional charges will be assessed by the Land Transportation Office for road taxes, tonnage tax, and registration fees.

If you are bringing an older American car to Japan, you may run into still another problem. Base exchanges normally don't stock repair parts for vehicles more than six years older than the current models. Obtaining timely repairs for older vehicles will be difficult if not impossible.

(above, left)
Sometimes traffic signs are difficult to see because of their proximity to other signs, billboards, or what-have-you. The top two signs combine to mean the end of a no-passing zone, while the bottom indicates "no parking."

(above right)
Though this is a relatively small American car, it virtually fills this narrow road. The traffic lights indicate that traffic is supposed to be able to flow both ways, but the driver of this car would find it difficult to keep his fenders intact should another similar sized car be coming the other way.

(left)
Watch out! Although the characters are Japanese, this sign really needs no translation.

EXPECT THE UNEXPECTED

According to TSgt John R. Grinsel, NCOIC of the Yokota Air Base Motorcycle School, a motorist needs to remember one important thing when driving on Japanese roads: "Always expect the unexpected; you won't be disappointed."

Sergeant Grinsel knows whereof he speaks. He was the recipient of 1973's Air Force Chief of Staff Individual Safety Award for his motorcycle school, which has been called the best in the Air Force. Sgt. Grinsel can tell stories of driving in Japan that would turn anyone into a confirmed pedestrian.

"One day my class and I were following a large truck carrying a bulldozer," Grinsel reminisces. "As we approached a red light at an intersection, we changed lanes. When the truck began to move again, the bulldozer rolled off. If I hadn't changed lanes, I wouldn't be here today."

Grinsel tells of another experience when he and his class were following a lumber truck – until the sergeant noticed the lumber wasn't tied down.

"I changed lanes very quickly!" he says. The safety-conscious sergeant says the most common driving error of Americans in Japan is not watching for the unexpected.

But Grinsel speaks highly of the Japanese traffic system.

"Japanese police are the best in the world. They're not out trying to stop Americans and earn revenue for the local community. They're out enforcing the law. The Japanese system of traffic laws is superior to ours in one way: they are uniform. All traffic laws are national laws and don't differ from one area to the next.

"The Japanese driver is a better driver than the average American – at least as far as education is concerned. It costs the Japanese driver about $1,000 to go through school to get a license," explains Grinsel. "He knows more than just how to drive a car. He also understands the mechanics of it and why it can do things like flip over. If he wants to be, he's a good driver."

According to Sergeant Grinsel, the biggest difference between American and Japanese drivers is the aggressiveness of the Japanese.

Americans must adjust to Japanese driving conditions. The people of Japan are not going to change their driving habits for us.

Several recent incidents of exploding batteries prompt us to double check that our readers know how to jump-start a vehicle correctly. Let's face it, a dead battery will stop most of us some time or another. There's really only one right way to jump-start, and here it is:

- Make sure that both the "live" and the "dead" batteries have the same rated voltage. A 12-volt battery may burn out a 6-volt battery, and a six volter just doesn't have enough poop to crank over a 12-volt system.
- Make certain that both vehicles have negative ground electrical systems. Check this by looking at the battery terminals . . . the terminal marked "−" or negative should have a wire running to the car's frame or engine block.
- Insure the "dead" battery isn't frozen. Electrical current from a live battery could cause the dead one to explode, either from too much pressure or from a hydrogen gas detonation. If you're not sure whether the dead battery is frozen or not, our advice is don't try the jump start.
- Bring both vehicles close together but not touching; you may cause sparks if they touch during the jump start.
- Keep the "booster" car's engine running, turn off all accessory switches in the "dead" car, set both parking brakes, and don't stand between the two cars.

Now that you've made your preparations, let's move on to the pictures and check what to do next.

(Opposite page)

(top left)
Remove the well caps from both batteries. This is necessary because the vents in these caps, even if open, often don't provide adequate ventilation of hydrogen gas generated by the battery.

(top right)
If you're sure the dead battery isn't iced up, cover the wells of each battery with 2 layers of cloth. This provides better dissipation of the hydrogen gas and minimizes danger from sparks.

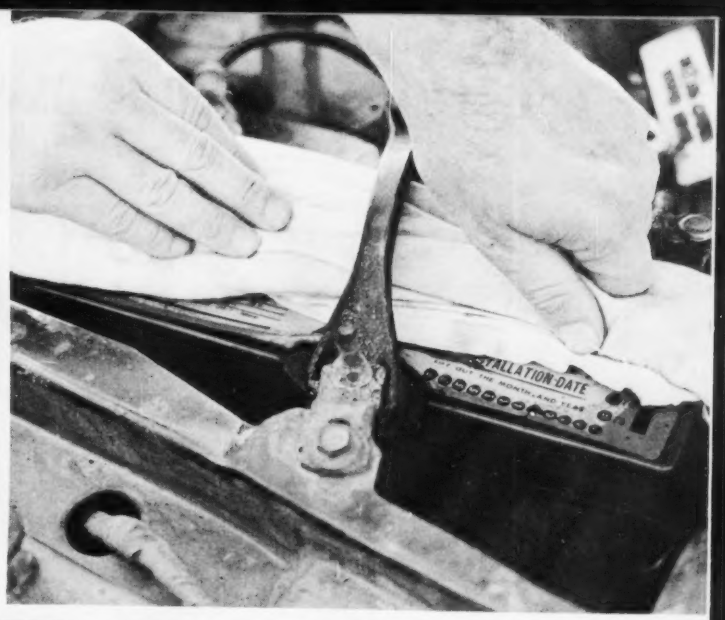
(center left)
Find the "positive" terminal of both batteries. This will be marked on the terminal post with either a "P" or a "+" mark. Connect one cable clip to the positive terminal of the live battery and the other clip on the same cable to the positive terminal of the dead battery.

(center right)
Here comes the switch from what you may have done before . . . connect one clip to the live battery's negative terminal, and the other end of the cable to the *frame* of the "dead" car. Place this clip as far from the battery as cable stretch will allow. This will help prevent any sparks from igniting the hydrogen gas.

(bottom left)
Start the "dead" car's engine. Now disconnect the 2 cables in *reverse* order. Detach clip from "dead" car's frame, and remove clip from live car's negative terminal. Take the clip off the dead car's positive terminal and then from the positive terminal of the live car.

(bottom right)
Remove cloths from well holes and dispose of them where the battery acid on them won't injure anyone. Replace vent caps. Wrap up the jumper cables and store them in your car (aluminum cables get very hot during a jump start, so allow time for them to cool before putting them in the trunk). Now, with the previously "dead" car running, take it to your base hobby shop or local garage and find out what caused the dead battery. You might have a bad cell in the battery, or a ground in your electrical system.

BATTERY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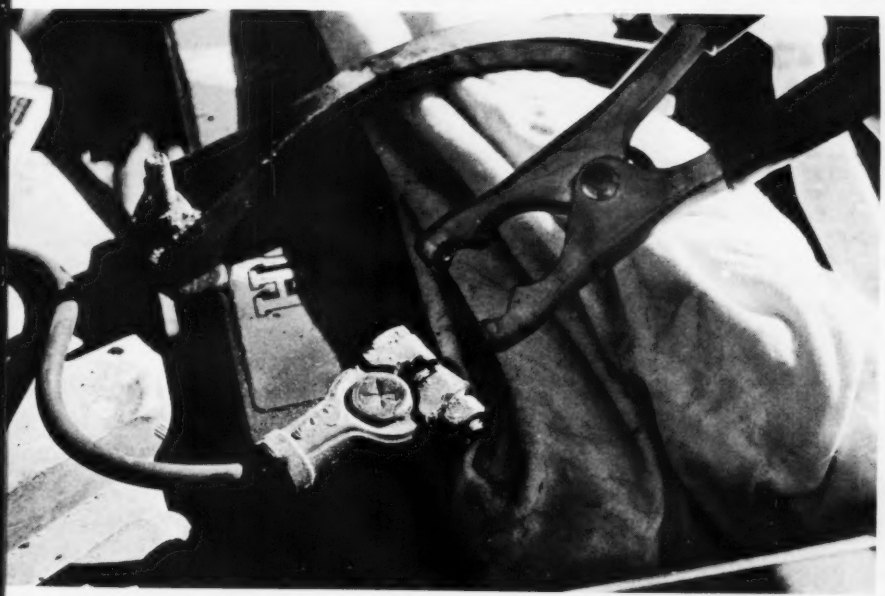
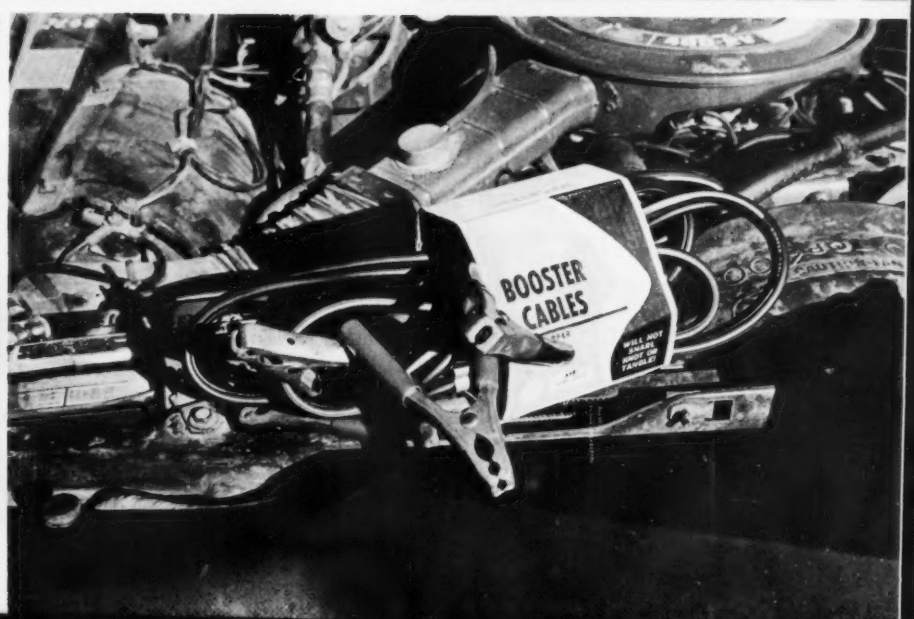



BOOSTER
CABLES

Our readers "tell it like it is"

OPIN

Cpl Chuck Covey, USMC
Communication Security Technician
Provisional Service Bn, 1st Marine Brig,
FMF Pacific
Kaneohe Bay, Hawaii
Age 21, Single
Hometown: Brenham, Texas

A1C Diana Harrison, USAF
Passenger Service Specialist
63rd Aerial Port Sq, 63rd MAW (MAC)
Norton AFB, CA 92409
Age 19, Single
Hometown: Excelsior Springs, Missouri

DRIVER likes to know what you people are thinking about cars and cycles and allied subjects. So whenever we get the chance, we go out and ask questions, and print the better interviews. By sharing these interviews with you in DRIVER we hope to provide insight into fellow drivers' beliefs and attitudes, and cause you to re-examine your own. The thoughts expressed here are those of the individuals interviewed, and do not necessarily represent fact or Air Force policy. Suggestions or ideas for future questions in this series are welcomed by the Editor.

BT3 Bob Granlund, USN
Boiler Tender
USS FISK (DD-42)
Bayonne, New Jersey
Age 22, Married
Hometown: Norwalk, California

I O N S

Capt Chuck Nealy, USAF
Flight Inspection Procedures Officer
and C-140 Pilot
HQ Air Force Communications Service
Richards-Gebaur AFB, Missouri 64030
Age 29, Married
Hometown: Anchorage, Alaska

Pvt (E-2) Petra de Costa, USA
Motor Vehicle Operator
497th Transportation Company
Fort Lewis, Washington
Age 22, Single
Hometown: Attleboro, Massachusetts

1. The 55 mph speed limit has been in effect for two years now. Do you think it actually has helped to reduce traffic accidents?

Cpl Covey

It did the first year. After that people started getting used to the idea that policemen are going to be there, so people started buying CBs (Citizen Band radios). Accidents have started going back up . . . by 1978 they'll be as high as before (the 55 mph limit). A lot of people are in no hurry to slow down.

Pvt de Costa

Yes. I believe it's good to drive slower, and it also helps gas mileage. You're able to stop faster to avoid accidents.

BT3 Granlund

I can't see where it has reduced fatalities, although there are fewer accidents. Car-wise, it hurts gas mileage because most cars are made to cruise between 60 and 70.

Amn Harrison

I think the number of really bad accidents has gone down. Everybody's not going down the road 80 mph. They've slowed down a little, and you have a little bit more time to think.

Capt Nealy

Definitely! No doubt about it! Just look at the statistics. It's reduced the average speed at least 10 or 15 mph . . . saved more lives than when it was 70 mph. They may not be able to enforce the 55 mph limit but instead of driving 75 or 80 now, people are driving about 65. Anyone going more than that is going to be caught.

continued

	2. Has the 55 mph limit made you slow down? How fast do you generally drive?	3. Do you think American automobile manufacturers are doing everything possible to reduce gasoline consumption?
Cpl Covey	Right now I run around 60 and 65 cruising down the highway; otherwise, I follow the speed limit. I used to drive 70, 75, 80 on long stretches. I've slowed down, not because I'm afraid of getting a ticket but because most of the traffic travels slower.	No. There's no car around with a low compression engine that gets the gas mileage it should unless they add something on it that the normal car doesn't have. The regular high compression engines get better mileage per car.
Pvt de Costa	I am a very cautious driver. I even go below the speed limit, especially when it's raining. I drive between 50 and 60 on a freeway in good weather. I got a ticket in Ohio once, and that slowed me down.	I'm a little bit skeptical on that. I think Detroit has a lot of good things in the works, but they're not presenting them to the public as readily because they're holding out for more money.
BT3 Granlund	Yes, it has. I drive between 50 and 60 now. I'd rather see it go back up to 65 on the open road and freeways, however.	They're putting smog devices on cars now that harm the engine gas-mileage-wise and wear-wise. Other than that, they're doing enough to improve mileage.
Amn Harrison	Yes, I generally drive between 55 and 60 now.	I really don't know that much about cars mechanically. But when I drove from Missouri out here (California) in my '75 Toyota Corolla, I got 28 mpg.
Capt Nealy	Oh, yes. I used to travel 70 and now, when I go on a trip, I go 55 to 60 depending on traffic. I'm not as tired now. I don't feel as keyed up at the end of a trip as I did when I was traveling 70 or 75.	I think they're making an effort now – but with the prodding of the Federal government. They need to improve gas economy – it's a matter of their own existence as well as ours.

4. If you were President of the United States, what single thing would you do to improve our transportation system or traffic safety?	5. What do you think is the toughest problem facing motorcyclists today? Do you have any suggestions for solving it?	6. As a military service member, what would you like to see the Armed Services or your branch do for its members insofar as driving is concerned?
First thing I'd do is get rid of every car with pollution control, because it's not helping. It's reducing gas mileage on all cars. I'd get rid of low compression engines and try to get a carburetor that would be eonomical for both big and little cars.	People either just don't see them or act like they don't. They don't care. They don't think that the little motorcycle has enough power to do anything as far as a wreck is concerned. I don't really know how to solve the problem.	The Armed Services really don't have any power in the United States except during wartime. Military bases could do more for the protection of cars. They could make bigger parking lots and parking stalls so when people crawl into their cars, they won't slam the door into the next car. I know when I drove into Camp Lejeune, I didn't have one scratch on my 1974 Monte Carlo. When I left, I knew that to get the paint job looking good like it should would cost me at least $300.
I think there should be better mass transportation in the cities . . . and small towns, too. I think it's very hard for people in the United States to move around without a car. I'd also try to revive the railroads.	Drivers seem to have a bad attitude toward motorcyclists. A lot of car and motorcycle accidents happen because of the car driver's negligence. They tend to overlook motorcyclists and don't treat them with respect. Drivers need to learn more about motorcycles and to read motorcycle magazines. But the only people who buy these are bikers, right? Panel discussions on TV might work . . . something that would reach a lot of people.	There's some things in the Army I might disagree with but, right now, I can't think of anything that concerns drivers. My commander is always there to help everybody out. If you've got a problem, need to get your car registered, insured, or get a sticker, he always helps us.
I'd post better signs – breakaway types – and build better roads in some areas.	People just don't care about motorcyclists. Drivers of cars crowd you off the road, pull up on you, pull out in front of you, stop right in front of you, things like this. The mass media needs to let people know that motorcycles have just as much right on the road as big cars and little cars.	On some bases the speed limit could be increased during certain hours. During the day it's fine like it is. I think it's good when your commander takes more interest in your driving. I know that when there's a long weekend coming up, the captain on my ship tells everybody to be careful and have a good trip.
I think I'd have refresher courses for drivers when they go to renew their licenses. I think I'd also make sure cars have air bags like I saw on a television commercial.	The biggest problem is other motorists. I guess they figure that since they're bigger, they have the right of way. I think people should take training like I had at Sheppard AFB (Texas). People need to change their attitudes toward motorcyclists.	They should have parking lots that are closer to your job.
I'd have to insist that Detroit produce a vehicle that is economical, well built, and would last beyond five years. I think they have the capability, technology, and materials for a sounder product. None of them considers passengers in the back seat . . . I think they should consider all four people, not just the driver. I really think that some of the small cars should be more impact resistant . . . improve their survivability. That's why I drive a Volvo.	Visibility for one thing. I don't think people are attuned to looking for motorcyclists or bicyclists. I'd try to put on a publicity campaign to let drivers of cars know motorcyclists also have rights on the road. The wearing of a helmet and clothing that are bright colored, not necessarily international orange . . . everyone should also ride with their headlights on.	Give them more credit for their basic driving skills and experience when they enter the service. At Richards-Gebaur AFB, they have a real good program. They point out the hazards . . . they don't try to tell you how to drive.

THE SMALLER YOUR CAR, THE MORE IMPORTANT YOUR DRIVING SKILLS. KNOWLEDGE AND PRACTICE ARE THE KEYS.

adv

You're driving along a quiet stretch of road, well within the speed limit, when you round a curve and find your way blocked by a stalled truck. There's no time to stop. Would you have the skill, the control, and the presence of mind to steer your way around trouble? Or would you hit the brakes in panic and skid into a crash?

Knowing how to hang in there and drive your way out of a tight situation is important for every motorist. But the smaller your car the more important it is to you personally.

THE SMALL CAR PROBLEM

Since 1969, the percentage of small cars being registered for the first time has risen steadily every year. So has the new truck and van registration. The increasing number of vehicles at the size extremes of the vehicle population leads to crash incompatibility. In other words, every year there is more chance of little ones and big ones mixing it up, with the little ones the losers. Consider that most vehicle accidents – about nine out of every 10 – are car-to-car collisions and you begin to get the picture.

Two of these three lights have just turned red. The idea is for the student to steer quickly into the lane with the green light and overcome the tendency to brake no matter what the situation. You can develop your ability to respond quickly if you concentrate. (The Bondurant School of High-Performance Driving)

teaching yourself advanced techniques

There are other gloomy facts for the small car driver to ponder. In any kind of crash, the occupant of a small car is likely to sustain more severe injuries than the occupant of a larger car. Belted drivers in sub-compacts are severely injured as frequently as unbelted drivers in full-size cars.

The insurance companies did some tests in which four separate pairs of vehicles – one small car and one standard – were crashed head-on. Each vehicle in each crash was traveling 48 mph. In every collision, the passenger compartment of the smaller car was demolished, while that of the larger remained intact.

continued

This is the pedestrian evasion exercise at the Coast Guard's Driver Improvement Course, at Cape May, New Jersey. Most drivers freeze on the brake and plow straight through the dummy. If you were faced with this situation and had been practicing smoothness and concentration, you would know which way traffic allowed you to swerve around the dummy and how to handle the car while doing it.

By now, all small car owners are nodding and thinking, "Sure, another good reason for getting some of those hulking gas hogs off the road before they run into us!" Unfortunately, that wouldn't solve the whole problem. Because the physical risk to occupants is about twice as great when two lighter cars (less than 2,700 pounds) collide than when two heavier cars (more than 4,000 pounds) crash into each other.

So what's your answer? Should the government put more and more restrictions on the size and style of cars we allow on our highways, enforce tougher traffic restrictions, and reduce the speed limit? Or should people use economical, small cars and learn to be more skillful drivers who know how to avoid collisions?

LEARNING SKILLFUL DRIVING

Until a few years ago, any advanced training you could find was for racers. Not so today. All across the country, excellent schools are springing up to teach advanced techniques to ordinary drivers. A lot of people who have no intention of racing have signed up for Bob Bondurant's famous School of High Performance Driving. They simply want to be better street drivers.

But there are still not enough schools, conveniently located, to teach everyone who wants to learn advanced skills, to say nothing of instructing every licensed driver in the country.

There *is* an alternative. You can teach yourself. Now, it's obvious that nobody can duplicate on his own the professional instruction offered at a place like a GM Advanced Course. But that doesn't mean you can't do a lot to improve your performance. Probably a lot more than you think.

Basically, you must learn smoothness, consistency and concentration.

Smoothness is accomplished by avoiding rough steering, braking, shifting or acceleration, which causes erratic changes in the balance of the automobile. The grip which the tires exert on the road is upset when the weight of the automobile is shifted rapidly from side to side or from front to back.

Consistency is most easily learned on a race track, where you follow the same path over and over again. The object is to brake at the same point, to accelerate out of it and to change gears entering and exiting it at precisely the same point, lap after lap. Speed is not necessary. Well, you don't have a race track to practice on. But you can learn consistency by following the same route to work or class or wherever you drive daily. Practice braking for that stop-sign, turning those corners the same way everyday. Really learn the feel of your car and always use the accelerator and gearshift the same way. Drive the car. Don't let it drive you.

Incidentally, every car really does handle differently. When a racing pro gets into a strange car for the first time, he adjusts the seat belt, checks the positions of the pedals, and then gets the feel of the steering wheel and shift linkage.

Concentration doesn't really need explanation. While you're practicing consistency, you have to be concentrating. Keep your body relaxed and your mind alert. Speaking of body position, it's possible to low-ride around town with your eyeballs aimed just over the steering wheel and still have concentration. The trouble is that the contact your body makes with the seat and with the controls is the only thing which allows you to feel what the car is doing. It's important to sit up in the seat to give maximum body contact.

Your legs should be close enough to the pedals to depress them all the way to the floor in an emergency. The arms should be bent enough to give good leverage, but not so close to the body that they can't be moved rapidly if necessary. Holding the wheel at the 9 and 3 o'clock position is recommended for best leverage. The "straight arm" style is practical only for a very light car with extremely quick steering.

Once you are this far, you are already a driver who is much better prepared to avoid a collision.

TRAINING FOR EMERGENCIES

There are some things best learned by doing. One of these is skid recovery. But obviously you don't have a skid pad to practice on. Instead, you have to commit the skid rule to memory, so that you know instantly what to do if it happens to you.

The key to quick evasive action on the road is proper hand position. Hands too close together, or the one-hand routine, won't cut it.

Turn the wheel in the direction in which the rear of the car is skidding. If you then start skidding the opposite way, turn the steering wheel in that direction. You will probably have to repeat this several times so don't give up. If you practice smoothness, consistency and concentration, you can drive a lifetime and never encounter a skid in the first place.

There are other emergency procedures you can practice only at a school with special equipment. One of these is the way to deal with a blowout. Blowouts seldom happen anymore, but if you have one don't slam on the brakes. Grip the wheel hard, steer carefully to stay in your traffic lane, and brake gently.

"What's that guy doing in my lane?" Honk, brake and swerve. Blow the horn because he may be dozing. Apply brakes in a controlled manner. Swerve to the right. Don't go left—he may correct. Go off the road, even into a ditch if necessary. Avoid a head-on.

If you go off the pavement, slow down and return to the pavement if you can. If there's something ahead, such as a tree, first slow down, straddle the edge of the pavement, and then steer sharply left back onto the road. Remember to return the steering wheel to the straight-ahead position the instant the right front wheel hits the edge of the pavement so you don't cross the lane.

Think about emergency situations and what you would do about them. For instance, what if a car comes at you head-on? The pros say honk, brake and swerve. Blow your horn because he might be dozing. Apply brakes in a controlled manner and swerve to the right. Go off the pavement, even into a ditch, if necessary. Avoid a head-on at all costs.

How about that stalled truck we came upon at the beginning of this article? Don't just brake and skid into a crash. Take your foot off the gas and glance quickly ahead and in your mirror to check other traffic. If there's no opposing traffic, swerve left around him. If you're on a two-lane road with cars coming, go out on the shoulder . . . don't brake, steer. Again, go in the ditch rather than into a head-on.

All advanced driving schools try to remedy the bad habits that creep into almost everybody's driving: riding the brake; failure to pass decisively; tailgating; failure to signal lane changes; failure to make constant use of rearview mirrors. And, above all, failure to anticipate and take defensive action when trouble turns up. You can break any of these habits if you really want to.

The very best way to learn something is by doing it yourself, in the company of someone who already knows how. But if that's the only way we learned anything, most of us would be mighty ignorant. You can make yourself a driver of real ability. It takes knowledge and practice. Both are yours for the taking.

Several readers have sent us clippings or phoned us with information about a fantastic new carburetor. Or rather, misinformation. There just isn't any sort of carburetor or auxiliary device that will give you this type of mileage . . . it's almost physically impossible.

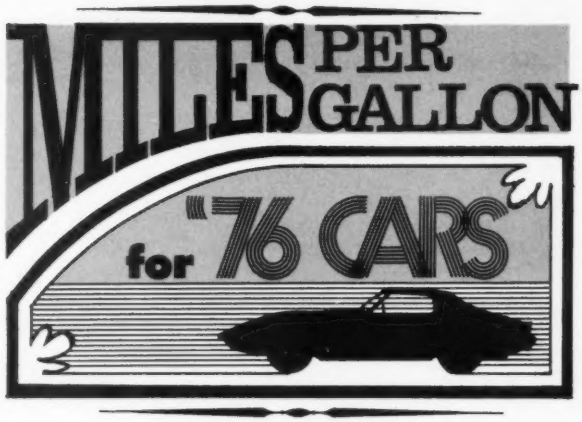
Air/fuel flammability limits are between 7:1 and 20:1, with today's engines running at about 17:1 at cruise. Any leaner mixture might result in misfire or detonation.

Let's face it, a cylinder demands only so much mixture per stroke to make power. On each successive stroke, the same amount of mixture will be required, *regardless* of type of carburetion.

To fill a cylinder, the amount of mixture is identical each time, no matter whether it's put in with a carburetor or a shovel.

So, think twice about buying "miracle" carburetors. Regular tune-ups and good driving habits are still the keys to good mileage.

Of course, if one of you Backyard Mechanics does happen to devise a new mileage-maker carburetor, don't hesitate to call on your ol' technical editor. He sure would like to get in on the ground floor!



Gone are the days when appearance was the main concern of new car buyers. Emphasis today is on the specific performance of the car—essentials like how many miles it gets to the gallon.

The Federal Energy Administration and the Environmental Protection Agency have a booklet designed to help you make your choices. *Miles Per Gallon for 1976 Cars* lists for each car both the city and highway mileage you can expect. And this year, for the first time, mileage figures based on a combination of city and highway driving are also included. For a single free copy of *Miles Per Gallon for 1976 Cars*, write to Consumer Information Center, Dept. 84, Pueblo, Colorado 81009.

The booklet also points out the following factors that influence gasoline consumption:

■ Vehicle weight and engine size are the most important. Optional equipment not only adds weight to the car, but also requires power from the engine and, therefore, requires fuel to operate. For example, using an air conditioner can reduce gas mileage by more than 10 percent in city driving.

■ Rapid acceleration can reduce fuel economy by 15 percent over moderate acceleration.

■ The best fuel economy occurs at speeds between 30 and 40 miles per hour with no stops and no rapid speed changes.

■ An idling engine burns about a half-pint of gas every six minutes, so don't idle your engine needlessly.

■ A tuned car will average 6 percent better mileage than an untuned one. And a properly maintained car also helps reduce air pollution.

■ Unnecessary braking, excessive driving in low gears, dragging brakes and short trips all reduce fuel economy.

And if you are thinking about a used car, you can still get a free copy of the *Miles Per Gallon Ratings for 1975 Cars* from the same address, as well as a free copy of the *Consumer Information Index*.

Tune-up HAZARD

Owners of 1969 through 1975 Ford products should check their cars to see if they are equipped with an *automatic* emergency brake release. This device is intended to prevent driving with the emergency brake engaged.

With this option, the emergency brake is released when the transmission is shifted into gear.

Unfortunately, some tune-up procedures, such as carburetor adjustments, must be made with the engine running and the car in gear.

Several service people have been injured when doing tune-ups because the car moved forward while they were standing in front of it, pinning the individual between the car and a wall or other object.

Proper procedure for this operation is to have someone else inside the car holding the service (normal) brakes on while adjustments are accomplished. There is no other correct way.

vintage TIN IS IN

Beginning with the May issue of DRIVER, we will be running a series of articles on automobile restoration. We'll cover such topics as how and what to purchase, cost estimating, disassembly, frame restoration, running gear, bodywork, paint and upholstery techniques, parts finding, plus many more ideas and methods.

You'll find the tips and techniques will also apply to keeping your late model car running.

Those of you who have always wanted a street rod will be interested in this series, too.

We'll be using two pickups, one a 1935 Ford, the other a 1937 Ford, for our project vehicles. One was partially restored when purchased, the other was a "basket case."

We're new at this, too, so kick back and learn along with us. You're sure to enjoy it.

Smoking/Driving HAZARD

We all know that drinking and driving is bad news. But what about smoking and driving, or breathing someone else's smoke as you drive?

For a more complete look at this subject, see Dr. Robert L. Henderson's interesting and important letter in this issue's "Backfire," page 26.

VW-Audi Converter Bypass

Readers who are taking their catalytic converter-equipped Volkswagen or Audi overseas may now purchase a pipe that replaces the converter. This replacement head pipe may be ordered through any Volkswagen dealer. The pipe is inexpensive and can be installed at most base hobby shops. The part number is 039251058 and most dealers will want to see a copy of your orders before they sell you the pipe.

continued from page 2

DOUBLE CLUTCH

stopped. Unfortunately, he noticed this too late to stop in time himself, or for most of the rest of us in the line of cars to avoid rear-ending each other. But because I knew IN ADVANCE the condition of the shoulder dividing the freeway, I was able to bail out of this situation without hesitation.

As my car dramatically skidded to a stop in a thick cloud of dust and I finally got my heart out of my throat. I wondered—suppose I HADN'T been playing "what if" . . .

About Miss DRIVER

See back cover

Eighteen-year-old Karen Clegg is in her second semester at Valley College, San Bernardino, California. The green-eyed blonde is considering a business major, and her outside interests include tennis, swimming, and crocheting.

Karen learned to drive through driver's ed, and has been driving two years now "without even a close call." She told DRIVER, however, that she "avoids dating guys who drink and drive because of a near-accident with a drinking date."

Safety and security, but no Rubber Duck . . .

CITIZEN BAND RADIOS

This month, we're making a departure from the regular BYM format of water pumps and greasy parts to cover something that may be new to some of us but an asset to us all . . . Citizen Band radios.

Over six million of these Citizen Band (CB) radios have been sold, two million of them in the past year. Estimates are that by 1980, one vehicle in four will be equipped with a CB rig. Even now, they're installed in 20% of the trucks on the highway.

Why do we say that CB is an asset to us all? Well, let's look into the advantages of CB radios.

CB CAN HELP

Common sense will tell you that a radio is invaluable if you are stranded somewhere with mechanical problems or out of gas, or trapped by water, mud, or snow. Just get on the CB and call REACT (Radio Emergency Associated Citizens Team) on Channel 9. The REACT volunteers monitor Channel 9, the emergency channel, all the time and they'll get assistance out to you in a flash.

Another place CB can help is if you are driving through a new town and need information on where to stay, what to see, or how to find your Aunt Hilda's house. One of CB's more valuable features is that you can use it to get advance info about road conditions that can help you decide whether to press on, go back, or consider an alternate route. When driving in unfamiliar territory, this can be a real safety factor.

SMOKEY VS THE RUBBER DUCK

Many people are under the impression that the sole purpose for CB is to use "handles," or code names, to avoid getting speeding tickets from Smokey (the police). If you listen to a current popular record, you'll hear that the Rubber Duck uses CB to outwit police from one end of the country to another. This song about a transcontinental convoy is funny we admit, but it's neither accurate nor true.

Officer John Savage of the CHP (California Highway Patrol) tells us about police reaction to CB radios. "The character whose handle is Rubber Duck in that song just isn't representative of CBers at all. Ninety-nine percent of the people involved in CB don't use it that way. In fact, CB is one of the best things to happen to police work in a long time.

"Let's say I park on an overpass at the top of the Cajon Pass and sit there for a while. I've got CB in my patrol car and I hear CBers telling their buddies about a bear (policeman) parked at mile 283 and to slow down a bit. Then I'll move off the ramp and head south a little and then north again. The radio says there's a bear northbound, one southbound, and one sitting at the overpass. The net result of this is that traffic for 30 miles either way will slow down, and I've effectively covered 60 miles of highway by going two miles. When people slow down, they're that much safer, and my job is that much easier.

"Another benefit is that when CBers see a drunk driver or someone operating erratically, they don't hesitate to call us on the radio and tell us where the guy is. I can't begin to count the possible number of lives that have been saved by alert CBers. They also will tell us of an accident or an unusual road condition. We can respond about 10 minutes quicker than if someone has to drive to a phone, call in, and have the dispatcher radio me. As far as we're concerned, CB makes our police more effective, and the highways safer."

THINKING OF BUYING A CB?

We thought you might be, so we've gathered some info you may find helpful in deciding what to buy.

What is CB radio? It is a designated set of frequencies running from 26.965 to 27.255MHz. It was initially used by

small businesses but has since become popular with all segments of the population.

How do you get a license? Obtain a license application from any Federal Communications Commission (FCC) office. Fill it out completely, including the number of units you expect to broadcast from, and remit it along with $4. In about two weeks you'll receive your license and your own set of assigned call letters. By the way, although six million CB radios have been sold, only three million licenses have been issued . . . so somebody is cheating.

What are the rules governing CB operation? Briefly, you can't use obscenity, can't tie up a channel with more than five minutes of talk, and you must identify yourself with your call letters upon initial contact and at the end of a conversation.

continued

REVISED APCO "TEN CODE" USED BY SOME CBers

10-1 Signal Weak
10-2 Signal Good
10-3 Stop Transmitting
10-4 Affirmative (OK)
10-5 Relay (To)
10-6 Busy
10-7 Out of Service
10-8 In Service
10-9 Say Again
10-10 Negative
10-11 _____ On Duty
10-12 Stand By (Stop)
10-13 Existing Conditions
10-14 Message/Information
10-15 Message Delivered
10-16 Reply to Message
10-17 Enroute
10-18 Urgent
10-19 (In) Contact
10-20 Location
10-21 Call (_____) by Phone
10-22 Disregard
10-23 Arrived at Scene
10-24 Assignment Completed
10-25 Report to (Meet)
10-26 Estimated Arrival Time
10-27 License/Permit Information
10-28 Ownership Information
10-29 Records Check
10-30 Danger/Caution
10-31 Pick Up
10-32 _____ Units Needed (Specify Number/Type)
10-33 Help Me Quick
10-34 Time

Pretty Terry Van Buren knows that CB radios offer a fast way to get help in case of breakdown or highway trouble. One call for "Smokey" and assistance is on the way.

WHAT TO LOOK FOR

As with most anything else, you get what you pay for, but there are certain features you need to get satisfactory performance from your rig.

Generally, you should purchase a CB with the following features:

- Audio power output as high as possible, preferably over three watts.
- "Double het" or dual conversion receiver portion.
- Modulation (voice loudness) rating at or near 100%.
- Correct voltage and polarity for your type of electrical system.
- Unit comes with a plug-in, dynamic mike.
- Sensitivity (ability to distinguish between signals) from 0.35 to 1.0 microvolts. The smaller the better.
- Low microvolt reading on audio squelch control circuit sensitivity.
- A minimum of 40 dB (decibels) spurious rejection reading. This relates to the unit's degree of perfection in picking up only one conversation at a time.
- Adjacent channel rejection from 40 to 50 dB, the higher the better.

Usually, the best mike to use is the mike that came with the radio. Factory research has designed that mike to work best with that radio. Don't bother to buy a pre-amp mike because they can sometimes destroy the radio's internals. Pre-amp mikes also overmodulate and cause excessive noise on the air. About the only thing they do well is cover up for a bad or malfunctioning radio.

Use coaxial (co-ax) cable to hook up the antenna to the radio. Install power wire of the correct gauge to hook the radio up to the battery or fuse box. If you run the power wire directly from the battery, don't forget to install an in-line fuse of less than five amps to protect the circuit.

If you get a popping noise in the radio when the engine is running, it probably comes from alternator or ignition sources. Alternator noise is eliminated by using a noise filter, and ignition noise is stopped with resistor-type plug wires.

Your antenna must be matched to your radio with an SWR (standing wave ratio) meter. Consult with your dealer about this service.

Mounting your new radio is a straightforward operation and not too difficult. Care must be taken, however, in deciding *where* to mount it. There are two considerations when deciding mounting location: One, the radio must be easily seen and reached so as not to distract your attention from the road, and two, it should not be mounted in such a manner that it may injure you or your passenger in the event of an accident. The best place in most cars would be under the dash, slightly left of the center.

RADIO DISCIPLINE AND COURTESY

FCC rules specify that users identify themselves with their call signs. The call sign must also be spelled out. So, if your call sign is KBC 1212, you say,

Today's transistor-operated CB radios are truly complex. If yours goes bad, don't try to mess with it yourself unless you're sure you know what you're doing. Mr. Steve Bartel knows that the proper equipment for repairs is a must.

A variety of reference material is available for those who want to learn more about the fascinating world of CB.

"Kay Bee Cee one-two one-two," not "12-12."

With the exception of Channel 9, the emergency channel, and Channel 11, used for contacting others, all 23 channels are open and available to you. Do *not* tie up Channel 9. It should be used in emergencies only. Use Channel 11 to make contact, and then switch to

continued

CAUTION
CBers and Amateur Radio Operators

Remember, use of CB or amateur radios on military installations is a privilege, not a right. If your radio operations interfere with military operations, the Base Commander may revoke your privilege to operate on base. On Air Force Bases, check with your frequency management office to be sure that your frequencies don't interfere or hetrodyne with any military operations. A good example would be if one of your CB channels was the fourth harmonic of the Instrument Landing System localizer. You could possibly prevent a pilot from finding the field and landing safely.

So, unless you want a big 10-74 from the Base Commander, use good sense and common courtesy while doing your radio thing on base.

CB GLOSSARY

ANL—Automatic noise limiter. Commonly used circuit in CB transceivers for reducing noise, especially that caused by auto ignition systems. See also Noise Blanker and Noise Limiter.

BASE STATION—Fixed position station for communicating with one or more mobile radio units.

CARRIER POWER—Radio frequency power of a transmitter with no signal input to the microphone.

CHANNEL SWITCH—Front panel control for making channel selection.

CLASS A STATION—Station licensed to operate in the 460-470 MHz band. 16 channels available for AM or FM radiotelephone.

CLASS C STATION—Station licensed to operate on certain frequencies in the 26.96 and 27.26 MHz and 72-76 MHz bands. Intended for remote control by radio of garage doors, planes and boats. No voice communications allowed.

CLASS D STATION—Station licensed to operate within the 26.96-27.26 MHz bands. 23 channels presently available. Radiotelephone AM SSB only.

COAX—Coaxial cable. Metallic shielded cable for connecting antenna to transceiver.

COAXIAL ANTENNA — Omnidirectional radiator used mostly for base stations.

DOUBLE CONVERSION RECEIVER—Receiver having two different intermediate frequencies.

ERP—Effective radiated power. Amount of power radiated by the antenna. May be more or less than power in the final stage of a transmitter, depending on amount of antenna gain or loss.

FIXED STATION—Station at a permanent location used for communications with other fixed stations.

FIXED TUNED—Crystal-controlled transceiver designed to work on specific channels.

FREQUENCY SYNTHESIZER — Circuit using about 6 or 7 crystals but permitting 23-channel transmission and reception without requiring separate crystals for each frequency.

INPUT POWER—Amount of DC power input to the final or RF power stage of a transmitter.

LOW-PASS FILTER—Circuit for reducing possible TVI (television interference) by CB signals.

LOADING COIL—Coil of wire, part of antenna system, for reducing required physical length of antenna.

MIKE—Also written as Mic. or Microphone.

MOBILE UNIT—Radio station that is either portable or mounted in a car, boat or other form of transportation. See also PACK SET.

NOISE BLANKER—Circuit for minimizing noise, usually ignition type.

NOISE LIMITER—Circuit for minimizing noise, usually ignition type.

PACK SET—Hand-carried transceiver.

SPEECH COMPRESSION AMPLIFIER—Used for compressing or clipping audio peaks, permitting maximum amount of audio signal modulation of carrier wave.

SQUELCH—Circuit for lowering noise level in absence of signal.

S METER—Meter for indicating relative strength of received signals. Meter is calibrated from 1 to 9. S1 is weakest; S9 loudest.

10 CODE—Abbreviations used during transmission and reception to help minimize use of air time.

TONE SQUELCH—Circuit used to reject all signals except those within a specified network of stations.

TRANSCEIVER—Two-way radio equipment consisting of receiver, transmitter and a common power supply, all on one chassis, with some circuits used for both transmitting and receiving.

WHIP—Vertical antenna, mostly for mobile use.

XTAL—Crystal. A frequency determining component.

another channel for actual communication.

Hold the microphone at a 45-degree angle to your mouth, and about two inches away. Speak normally. You don't have to shout if your set is operating properly.

Many CBers use "handles" such as Road Runner or Snowflake. That's OK as long as you say "KBC 1212 (your own call sign) the Cannonball, calling F-Stop." When he acknowledges he may say, "F-Stop back to Cannonball."

UNLICENSED OPERATION

If you operate an unlicensed CB transceiver, you're really sticking your neck out. You could be jailed, fined, or both, for violating the "Communications Act of 1934, As Amended." That's a whole lot different from violating an FCC rule. If an FCC inspector catches you in the act, he can refer you to the Department of Justice, since the FCC has no jurisdiction in this area. Saving the cost of a license isn't worth a federal rap and having your name recorded as a felon.

A FINAL WORD

CB can be a rewarding hobby, and it can also save your life, or the life of someone else. Use it wisely and maturely.

Well, as the Rubber Duck would say, "Keep the bugs off your glass and the bears off your . . . tail, and y'all have a mighty fine day."

DRIVER wishes to thank the following individuals and businesses for their help in the preparation of this article:

Steven Bartel, Bartronics, Colton, Calif.

Mac's Lafayette Radio Electronics, San Bernardino, Calif.

Radio Shack, San Bernardino, Calif.

Mission Electronics, San Bernardino, Calif.

Brand or company names and products mentioned or pictured do not represent endorsement by DRIVER or the U.S. Air Force.

MOST USED CB CHANNELS

9CB

Volunteer teams monitor Ch 9 to render assistance on emergency calls only!

11CB

Generally used as calling channel to reach other stations.

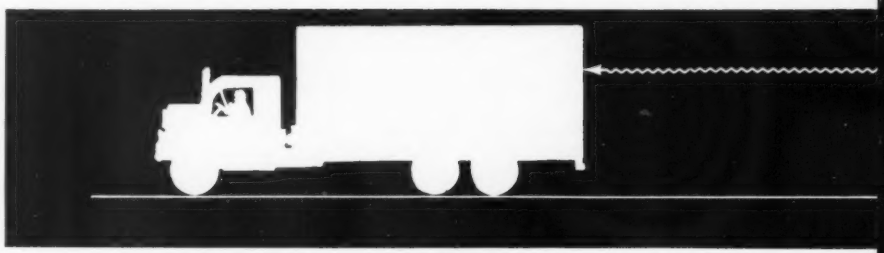
13CB

In coastal, lake, and river areas, smaller boats use this channel as common contact frequency.

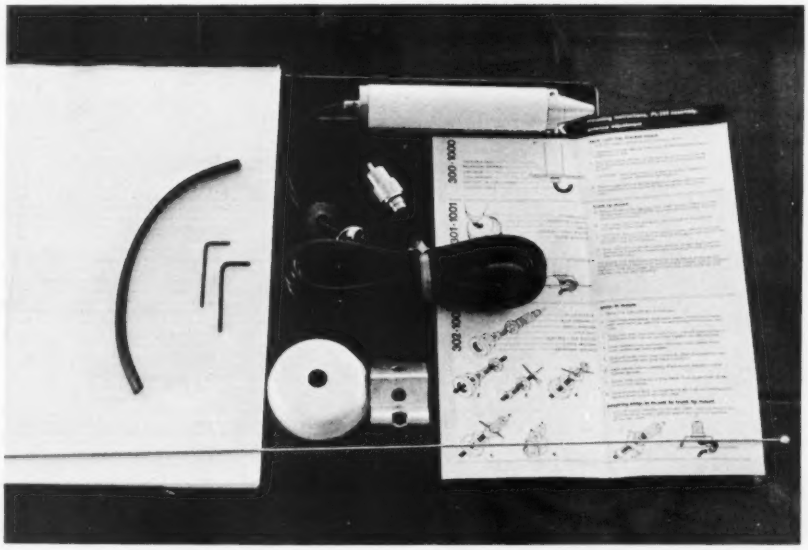
14CB

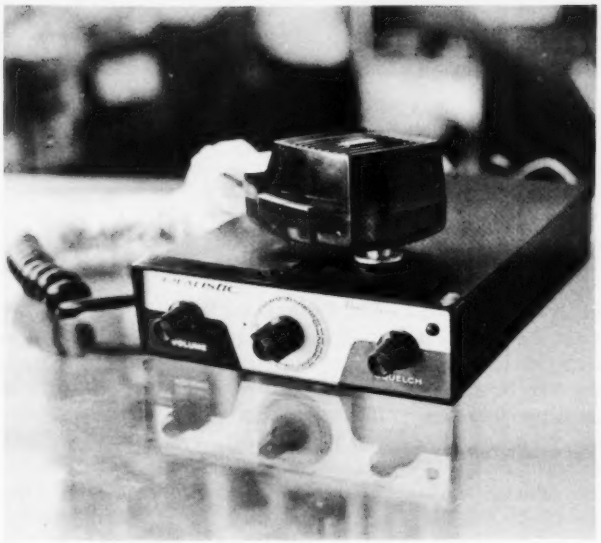
K.O.A. (Kampgrounds of America) and others monitor for camping information, etc.

With more than 200 types and brands of antennas on the market, choosing the right one can be tough. Be sure the one you pick has the features you desire and the type of mounting system you need.



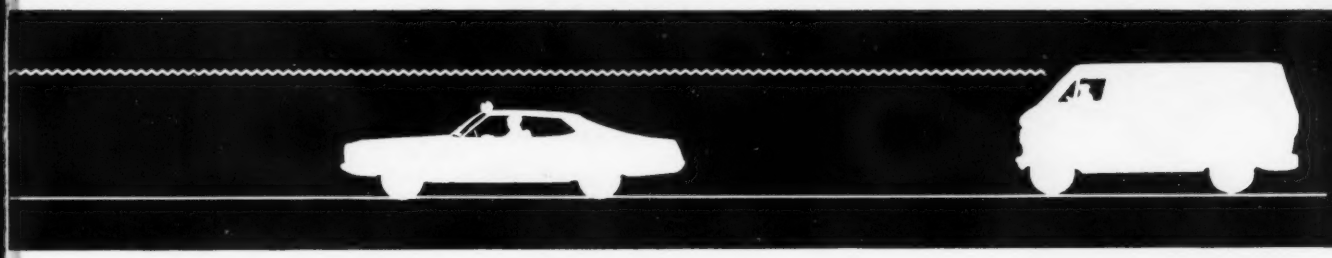
This is what a simple trunk-mount-type antenna looks like unpackaged. Before you install it, check and see all the pieces are there. With this compact unit, the device that looks like a missile is a coil that allows you to use a short mast instead of a long, unweildy whip-type mast.





CB radios come in all sizes and models, with as few or as many features as you need. This one is good for a beginner as it's inexpensive and compact. It has all 23 channels, but its range is somewhat limited.

This model has an S meter which shows you how well you're receiving or transmitting. It has good distance ability and is reasonable in cost. A good choice for the amateur radio enthusiast or for someone who does a lot of off-roading.



Features of this model include an S meter, a Delta tune (fine tuning) knob, and a phone-type microphone that will blank out the regular speaker and allow privacy in your conversations.

Near-top-of-the-line model offers Delta tune, a public address feature, a noise blanker, gain control, and a price over $200.

BACKFIRE

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

"TWO SIDES TO EVERYTHING"

This is in response to MSgt Bob Hartsfield's letter in the November '75 "Backfire."

It is apparent Sgt Hartsfield has no respect or consideration for the biker. He feels only the automobile has a right to the road. In my 14 years of riding motorbikes and motorcycles I have been run off the road three times by the automobile, and once by a pickup load of drunk cowboys. I have also been hit head-on by an "innocent" old lady who did not yield in a left turn at an intersection (she was later cited by police).

I feel that people like this old lady and MSgt should not be allowed on the road. I have never seen any motorcyclist look for an accident. The good majority of bike accidents are the younger bikers who are simply ignorant of the extreme danger involved.

Sgt George S. Hughes
P.O. Box 6501
Dyess AFB, TX 79607

I have just read the letter, "Two Sides to Everything," in the Nov '75 issue of DRIVER.

I disagree with MSgt Bob N. Hartsfield. Every motor vehicle presents some sort of a highway hazard, depending upon the individual who is operating it. A motor vehicle (automobile or cycle) cannot think. It is the mental attitude, or lack of sobriety of the operator, that may cause an accident.

TSgt Ernest G. Smith
Goss Hill Road
Huntington, MA 01050

You are right, Sergeant, and the letters we have received indicate there is some unreasonable animosity between "operators" of motorcycles and "operators" of cars.

We again point out that most accidents involving motorcyclists are caused by errors on the part of the motorist, not the cyclist. Unfortunately, it is the cyclist who suffers.

DECEMBER 1975 "BACKFIRE"

In "Backfire" Dec '75, MSgt Jenkins was right when he said, "I know DRIVER wasn't developed to be used as a forum on hair . . ."

But suggesting that AFM 35-10 should be used to "tune" *all* airmen is dumb! That's like saying that you can tune all cars with the same manual and same specs.

Airmen would be much more presentable if they were "tuned" to the specs of their model and size.

Take that as you will . . . but knowing that you won't publish opposition to AFM-35-10 or an Air Force MSgt, I won't waste a lot of time on the subject.

Sgt James T. Knisley
341 FMMS/LGB-AFFS
Malmstrom AFB, MT 59402

SMOKING/DRIVING DANGER

Your lead article on "Single-Car Accidents" (Dec '75) was extremely well done. I was surprised to find that, of the drugs you listed, carbon monoxide was completely ignored. Several investigators, including Srch and Lawther and Cummings, observed that smoking five to ten cigarettes in an enclosed car during winter months produced carbon monoxide levels up to 90 parts per million. These concentrations of carbon monoxide can

produce up to 15% carboxihemoglobin in the blood. Hemoglobin is the portion of the blood that carries oxygen to our brain cells. This carbon monoxide occupies this oxygen carrying ability and reduces the oxygen carrying capability of the hemoglobin to approximately 85% of normal.

Of equal significance is the fact that carboxihemoglobin has a half life of at least 3 to 4 hours in the body. This length half life extends the period of effect of exposure to carbon monoxide and provides for a buildup of carboxihemoglobin concentration in the blood from each new exposure to carbon monoxide, from further smoking. Beard and Granstaff observed that exposure to 50 parts per million of carbon monoxide for from 27 to 90 minutes altered auditory discrimination, visual acuity, and the ability to distinguish relative brightness. This means our ears and eyes cannot function completely normally to protect us while we are driving. We are all very familiar with the ability of carbon monoxide to induce unconsciousness and death as a very pleasant form of suicide. Although, as far as I know, a direct link between one car accidents and smoking cigarettes has not been identified, it would be interesting to observe how many of these individuals were asleep and how many of them did smoke, and the levels of carboxihemoglobin in their blood.

We can certainly see from these data that the concentration of carbon monoxide in an automobile can reach levels which would cause a person to become drowsy and add to the problem of fatigue, in inducing sleep. These levels of carbon monoxide, which have been recorded in enclosed automobiles, exceed those recently set by the Environmental Protection Agency as the national primary and secondary ambient air quality standards for carbon monoxide. These standards are 9 parts per million, maximum 8-hour concentration not to be exceeded more than once a year and 35 parts per million maximum 1-hour concentration, not to be exceeded more than once a year.

I believe the levels of carbon monoxide reached in an automobile from individuals smoking can be a definite hazard to safe driving.

LTC Robert L. Henderson, M.D.
Chief, Otolaryngology Service
and Consultant to the Surgeon
General in Audiology and
Otolaryngology
Walter Reed Army Medical Ctr
Washington, DC 20012

Thank you for the information, Doctor. This should be of interest to many readers

MOTORCYCLE TIMING

In your Nov '75 issue, Sgt Patrick J. Lundergan described a timing device one could construct for use on motorcycles.

His device works fine, but let me add that the flashlight battery is not needed on motorcycles that have a battery ignition system. All you need is a 12-volt bulb in the place of the 1.5-volt bulb. Turn the motorcycle ignition on and the bike battery supplies the current.

HMCM F.C. Monk, USMC
MEMQ 5142
MCB Camp Lejeune, NC 28542

Thanks for the tip. We would like to also point out that the light will go on instead of off at point opening, and if the ignition is on too long with the points closed, the points may burn.

I have just finished reading your Nov '75 issue and would like to relate another method of timing motorcycle engines I have found to be very accurate which requires no special tools whatsoever. The trick involves using a piece of the cellophane wrapper from a cigarette pack. Here's how it works:

Remove the spark plugs and align the timing marks. Loosen the breaker point hold down screws and rotate the crankshaft slightly until the points are fully closed. Insert the cellophane between the points. By gently pulling on the paper you will note that it won't slip out while the points are closed; now maintain this gentle pull on the paper while slowly rotating the point plate towards the timing mark. At the instant the paper slips out the points have just opened and you are right on the mark.

Don't forget to adjust the point gap before adjusting the timing, and if your bike is equipped with dual points adjust the dwell and timing in the order specified in the owner's manual. For all you four-wheelers, this method works equally well on automotive distributors.

Keep up the good work. Your magazine is excellent!

SSgt Lynn A. Burkle
31st AMS/MAAL
Homestead AFB, FL 33030

Readers should consider this a temporary method only. Variation in touch could mean three or four degrees difference.

TUNEUP

CAPTION CONTEST WINNERS

In the November 1975 issue of DRIVER, we asked: "How's your sense of humor?"

From the response to our Cartoon Caption Contest, your sense of humor's pretty good.

HONORABLE MENTION

T/Sgt Lester G. McGuire
184th TFTG, Flight Simulator
McConnell AFB, Kansas
Kansas Air Natn'l Guard

YN2SS R. R. Reed
CNO - OP - 121
Wash, D. C. 20350

Amn Richard A. Cooper
834th Security Police Sq.
Huriburt Field, Florida 32544

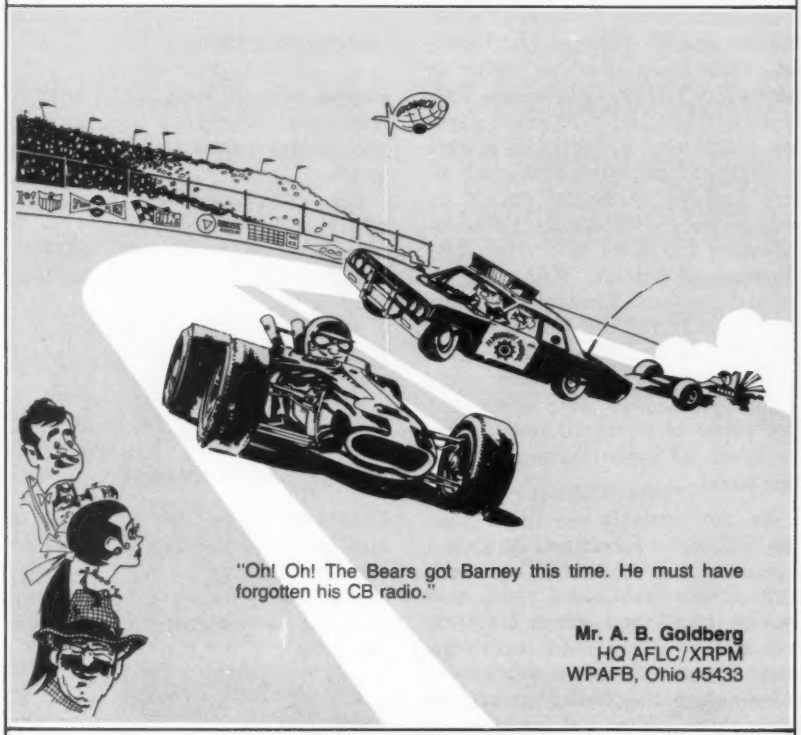
AECS A. A. Mosley
VF-32 Maintenance Control
New York, FPO, N. Y. 09501

SSgt W. A. Malec
PSC Box 3809
APO New York 09825

"I thought they said this was formula racing. What's that stocker doing out there?"

FTG1 David S. Cordry
Naval and Marine Corps Reserve Center
Washington, D.C. 20374

1st PLACE

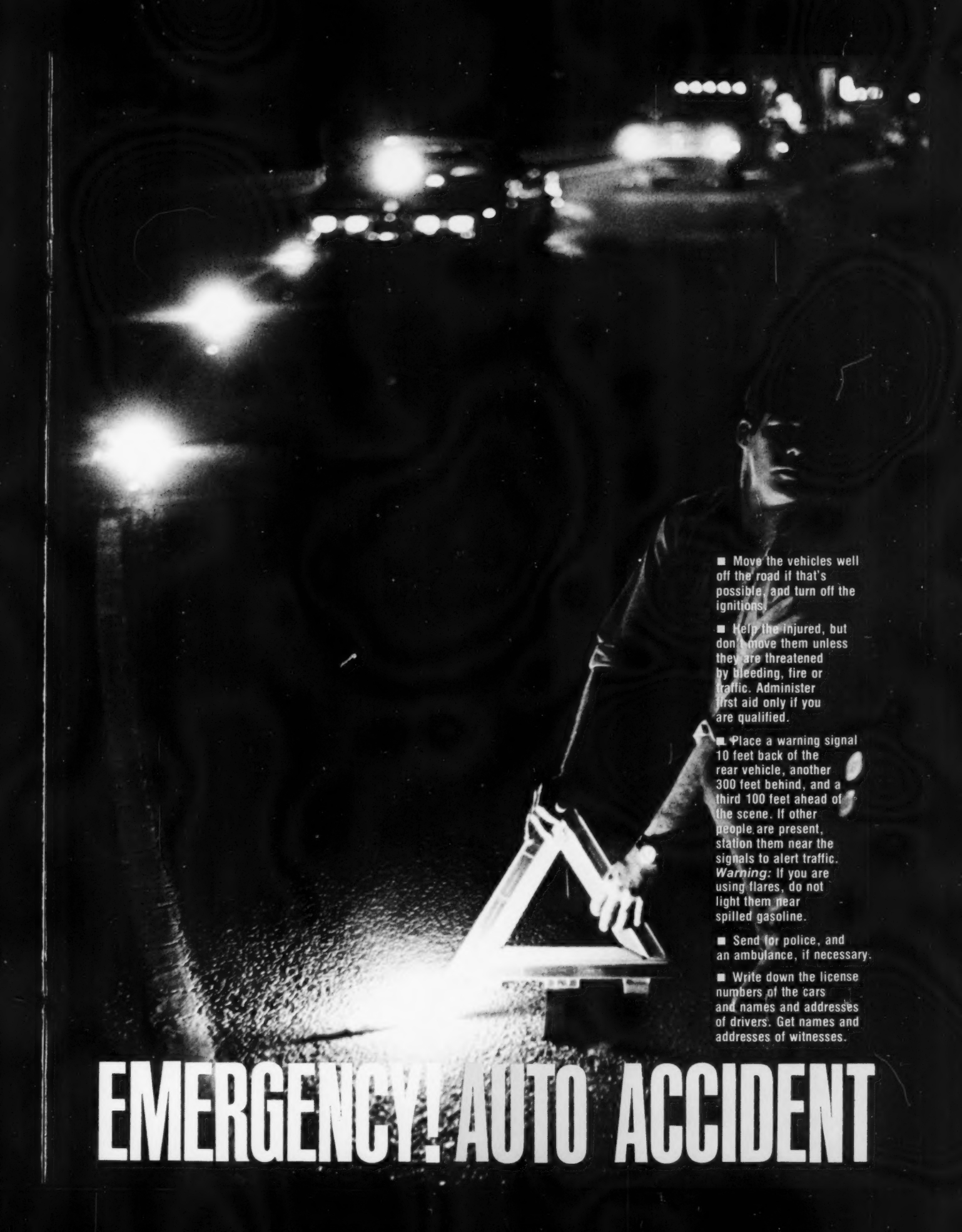


"Oh! Oh! The Bears got Barney this time. He must have forgotten his CB radio."

Mr. A. B. Goldberg
HQ AFLC/XRPM
WPAFB, Ohio 45433

2nd PLACE

☆U.S. GOVERNMENT PRINTING OFFICE: 1976—683-613/7

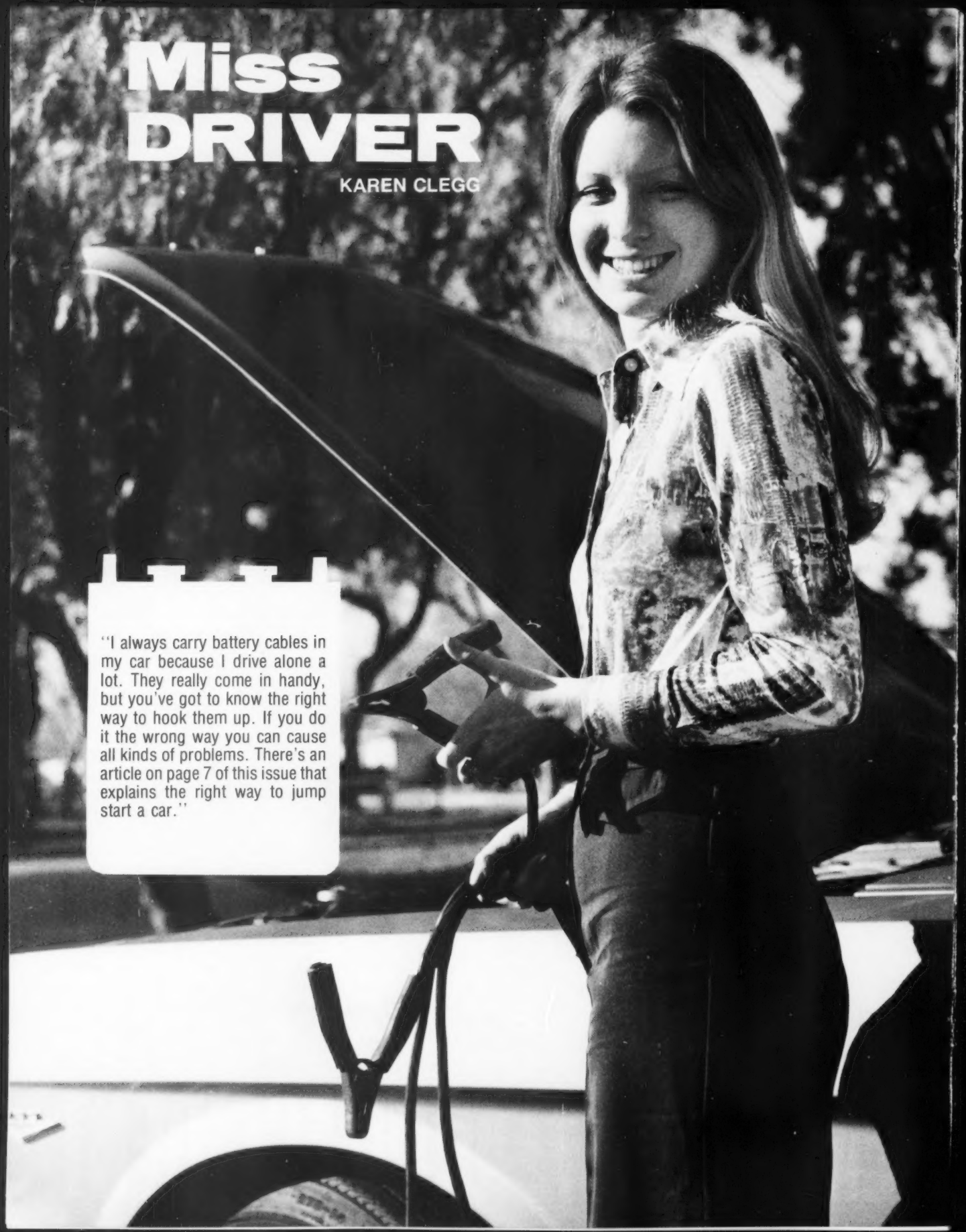


EMERGENCY! AUTO ACCIDENT

- Move the vehicles well off the road if that's possible, and turn off the ignitions.
- Help the injured, but don't move them unless they are threatened by bleeding, fire or traffic. Administer first aid only if you are qualified.
- Place a warning signal 10 feet back of the rear vehicle, another 300 feet behind, and a third 100 feet ahead of the scene. If other people are present, station them near the signals to alert traffic. *Warning:* If you are using flares, do not light them near spilled gasoline.
- Send for police, and an ambulance, if necessary.
- Write down the license numbers of the cars and names and addresses of drivers. Get names and addresses of witnesses.

Miss DRIVER

KAREN CLEGG



"I always carry battery cables in my car because I drive alone a lot. They really come in handy, but you've got to know the right way to hook them up. If you do it the wrong way you can cause all kinds of problems. There's an article on page 7 of this issue that explains the right way to jump start a car."